

AMENDMENTS TO THE SPECIFICATION

Please replace paragraph nos. 14 and 15 (page 3) with the following rewritten paragraphs:

Fig.3 shows the result of completely protection of the host from lethal doses of tetanus toxin after immunization with 1 μg , 5 μg and 15 μg of FlaB mixed with the tetanus toxoid via mice transnasal route.

Fig.4 shows the result of the antigen specific immune response measured by the ELISA method using sampled mice sera and various mucus samples after immunization with 1 μg , 5 μg and 15 μg of FlaB mixed with the tetanus toxoid via the mice transnasal route.

Please replace paragraph nos. 55, 56 and 57 (pages 8-9) with the following rewritten paragraphs:

V. vulnificus MO6-24/O type strains (obtained from J. Glenn Morris, Division of Hospital Epidemiology, University of Maryland School of Medicine, USA) and mini-Tn5 lacZ1 containing *E. coli* SM10 λ pir strains (obtained from Kenneth N. Timmis, GBF National Research Center for Biotechnology, Braunschweig, Germany) were cultured overnight at 37°C, 210 rpm in a stirring incubator, each were inoculated with single colony at 10 ml of 2.5 HI(2.5% NaCl heart infusion) broth media and 20ml of LB (containing 100 $\mu\text{g}/\text{ml}$ of Ampicillin and 100 $\mu\text{g}/\text{ml}$ of Kanamycin) broth media.

The following day these were centrifuged, and washed with antibiotic-free LB broth media and centrifuged two times, then suspended at 100 μL of new LB broth media. Each

bacterial suspension of *E. coli* and *V. vulnificus* were mixed together and dropped on LB agar plate. After culturing it overnight at 37°C, 800 μL of new 2.5 HI broth media was added to the grown colonies on LB agar plate and the grown colonies were scraped carefully after using sterilized glass rods. This bacterial suspension was moved to a 1.5 ml plastic test tube and suspended until becoming homogenous state. The suspension was diluted to 1/10 and 1/100, then undiluted and the dilutes dropped on TCBS (thiosulfate citrate bile sucrose) agar plate containing 200 $\mu\text{g}/\text{ml}$ of Kanamycin, spread until sufficiently penetrated, and cultured overnight at 37°C.

The following day only *Vibrio* colonies, grown on TCBS agar plate, were taken and inoculated on TCBS agar plate containing 300 $\mu\text{g}/\text{ml}$ of Kanamycin using toothpicks, and overnight cultured at 37°C. The following day grown *Vibrio* colonies were inoculated on 96-wells culture plates, containing 100 μL of 2.5HI with 200 $\mu\text{g}/\text{ml}$ of Kanamycin, and cultured overnight at 37°C without stirring. The following day 80 μL of 50% glycerol was added to each well, containing grown bacteria, and stored at -80°C in a deep freezer. When used for the experiments, these were inoculated to 2.5 HI broth media and cultured as needed.

Please replace paragraph nos. 72 and 73 (page 10) with the following rewritten paragraphs:

Seven-week-old female Balb/c mice were intranasally immunized three times with 20 μL of PBS (phosphate buffered saline), 3 μg of tetanus toxoid alone, or with combinations of 3

$1 \mu\text{g}$ of tetanus toxoid and $1 \mu\text{g}$, $5 \mu\text{g}$ and $15 \mu\text{g}$ of FlaB of *V. vulnificus*, at 7-day intervals. Seven days after the last immunization, saliva, vaginal wash and serum samples were collected from the immunized mice to assess TT-specific systemic immune responses and mucosal immune responses. These responses were measured by ELISA (Enzyme linked immuno sorbant assay) methods, and the mice that were vaccinated 3 times before were observed for 7 days after systemic administration of minimally 200 folds of lethal doses of tetanus toxoid. The results are shown in Figures 3 and 4.

As shown in Fig.3, the mice of the control group immunized with PBS only - were all dead (100%) within 24 hours, and only the 17% of the group of mice intranasally immunized with tetanus toxoid (TT) only had survived. However ~~40%~~100% of group of mice immunized with a combination of tetanus toxoid and $1 \mu\text{g}$, $5 \mu\text{g}$ or $15 \mu\text{g}$ of FlaB of *V. vulnificus* (TT + Vv-FlaB) had survived. The survived mice of TT showed tonic paralyses, but the group of TT + Vv-FlaB showed the same features as normal mice.

Please replace Table 2, paragraph no. 76 (pages 10-11) with the following rewritten paragraph:

Table 2

Groups	Protective immunity test (against tetanus toxoid)	Survival rate (7 days)
naive(n=5)	+	0%
TT(tetanus toxoid) only (n=15)	+	17%
TT + 7 μ g Lm-FlaA (n=5)	+	100%
TT + 9 μ g Vv-FlaB (n=5)	+	100%
TT + 12 μ g St-FliC (n=5)	+	100%